LISTING OF CLAIMS:

What is claimed is:

1. (Currently Amended) A method comprising:

operating a tire pressure monitoring system in a first operating mode, wherein the tire pressure monitoring system is implemented in a motorized vehicle;

using a piezoelectric sensor to sense vibration;

determining, using a controller, that an output signal of the piezoelectric sensor is above a predetermined threshold;

setting the tire pressure monitoring system to a second operating mode based upon the determination that an output signal of the piezoelectric sensor is above a predetermined threshold, wherein during the first operating mode, an output of a first sensor is sampled at a first sample rate and during the second operating mode the output of the first sensor is sampled at a second sample rate, wherein the piezoelectric sensor is mounted on a lead frame and the controller is implemented in an integrated circuit die, which is stacked on top of the piezoelectric sensor, such that the integrated circuit die, acting as a mass, increases sensitivity of the piezoelectric sensor to vibrations;

transmitting information to a controller system of the motorized vehicle at a first transmitting rate during the first operating mode, wherein the first transmitting rate is [[greater]] lower than the first sample rate; and

transmitting information to the controller system at a second transmitting rate during the second operating mode, wherein the second transmitting rate is [[greater]] lower than the first transmitting rate and is [[greater]] lower than the second sample rate.

2. (Canceled).

3. (Currently Amended) The method of claim1, wherein the first sample rate is [[s]]lower than the second sample rate.

4. (Previously Presented) The method of claim 1, wherein the first sensor is a tire pressure sensor.

5. (Previously Presented) The method of claim 1, wherein the first sensor is a temperature sensor.

6. (Original) The method of claim 1, wherein the piezoelectric sensor senses random vibration caused by a wheel rotating over a surface.

7. (Original) The method of claim 1, further comprising:

setting a counter value at a first predetermined value;

determining that the output signal is below the predetermined threshold during a sample time;

changing the counter value in response to the determining that the output signal is below the predetermined threshold;

determining that the counter value is a second predetermined value; and

setting the tire pressure monitoring system to the first operating mode in response to the determining that the counter value is the second predetermined value.

8. (Original) The method of claim 1, further comprising amplifying the output signal of the piezoelectric sensor.

9. (Original) The method of claim 1 further comprising:

amplifying the output signal of the piezoelectric sensor intermittingly, wherein the determining is performed when the output signal is being amplified.

10. (Currently Amended) The method of claim 9, wherein the amplifying is controlled by the assertion of a sample signal from [[a]] the controller ~~of the tire pressure monitoring system~~.

11. (Original) The method of claim 1, wherein the setting the tire pressure monitoring system to the second operating mode based upon the determination that an output signal of the piezoelectric sensor is above a predetermined threshold further includes determining that the output signal is above the predetermined threshold for at least a second occurrence within a

predetermined time before setting the tire pressure monitoring system to the second operating mode.

12. (Previously Presented) The method of claim 1, wherein the piezoelectric sensor is encapsulated in an encapsulant that includes at least one of a thermo-plastic material and a thermo set material.

13. (Original) The method of claim 12 wherein the encapsulant functions to amplify the vibration sensed by the piezoelectric sensor.

14.-15. (Canceled).

16. (Currently Amended) A tire pressure monitoring system comprising:

a first sensor having an output for providing an indication of a sensed condition of a wheel;

a motion detection system, the motion detection system provides a motion indication indicative of wheel rotation, the motion indication is utilized for placement of the tire pressure monitoring system in a first operating mode or a second operating mode, wherein the motion detection system further comprises:

a piezoelectric sensor for sensing vibration of a wheel rotating over a surface, the piezoelectric sensor having an output to provide an output signal indicative of an amplitude of the sensed vibration;

wherein the motion detection system utilizes the output signal in providing the motion indication;

a controller, wherein the controller samples an indication of the sensed condition as sensed by the first sensor at a first sample rate during the first operating mode, and wherein the controller samples an indication of the sensed condition as sensed by the first sensor at a second sample rate during the second operating mode, wherein the second sample rate is [[greater]] lower than the first sample rate, wherein the piezoelectric sensor is mounted on a lead frame and the controller is implemented in an integrated circuit die, which is stacked on top of the piezoelectric sensor, such

that the integrated circuit die, acting as a mass, increases sensitivity of the piezoelectric sensor to vibrations; and

a transmitter operably coupled to the controller, wherein the controller initiates transmitting by the transmitter of [[the]] information at a first transmitting rate during the first operating mode, wherein the first transmitting rate is [[greater]] lower than the first sample rate, wherein the controller initiates transmitting by the transmitter of the information at a second transmitting rate during the second operating mode, and wherein the second transmitting rate is [[greater]] lower than the first transmitting rate ~~and is greater than the second sample rate~~.

17-18. (Canceled).

19. (Original) The tire pressure monitoring system of claim 16, wherein the first sensor is a pressure sensor for sensing air pressure inside a tire of a wheel.

20. (Original) The tire pressure monitoring system of claim 16, wherein the first sensor is a temperature sensor for sensing temperature inside a tire of a wheel.

21. (Original) The tire pressure monitoring system of claim 16 wherein the motion detection system further comprises:

a comparator having an input coupled to the output of the piezoelectric sensor and an output for providing an indication that the output signal of the piezoelectric sensor is greater than a predetermined threshold;

the motion indication is based upon the output of the comparator.

22. (Currently Amended) The tire pressure monitoring system of claim 21, ~~further comprising: a controller;~~

wherein the motion detection system further comprises a counter, the counter being reset to a first predetermined value each time the comparator output indicates that the output signal of the piezoelectric sensor is greater than the predetermined threshold, the counter counting each time the comparator indicates that the output signal of the piezoelectric sensor is not greater than a predetermined threshold during an

assertion of a sample signal from the controller when a count value of the counter is not a second predetermined value;

wherein the motion indication is based on the count value of the counter.

23. (Currently Amended) The tire pressure monitoring system of claim 21, ~~further comprising: a controller;~~

wherein the motion detection system further comprises a counter, the counter counting each time the comparator indicates that the output signal of the piezoelectric sensor is not greater than the predetermined threshold during an assertion of a sample signal from the controller when a counter value of the counter is not at a predetermined value;

wherein the motion indication is at a state indicating motion when the counter value is not at the predetermined value.

24. (Original) The tire pressure monitoring system of claim 23 wherein the motion indication is at a state indicating no motion when the counter value is at the predetermined value.

25. (Previously Presented) The tire pressure monitoring system of claim 21 wherein the motion detection system further comprises:

an amplifier having an input coupled to the output of the piezoelectric sensor and an output coupled to the input of the comparator.

26. (Currently Amended) The tire pressure monitoring system of claim 16, ~~further comprising: a controller;~~

wherein the motion detection system further comprises an amplifier having an input coupled to the output of piezoelectric sensor, the amplifier amplifying the output signal when turned on;

wherein the controller provides a sample signal;

wherein the motion detection system further includes circuitry to turn on the amplifier during an assertion of the sample signal.

27. (Original) The tire pressure monitoring system of claim 16, wherein the first operating mode is characterized as being a lower power operating mode than the second operating mode.

28. (Previously Presented) The tire pressure monitoring system of claim 16, wherein the piezoelectric sensor is made of a piezoelectric material having a first Young's Modulus, the piezoelectric sensor is encapsulated in an encapsulant having a second Young's Modulus that is more elastic than the first Young's Modulus.

29. (Original) The tire pressure monitoring system of claim 28 wherein the encapsulant functions to amplify vibration sensed by the piezoelectric sensor.

30. (Canceled).

31. (Canceled).

32. (Original) A motorized vehicle including the tire pressure monitoring system of claim 16, the motorized vehicle further comprising:

a wheel including a tire, the tire pressure monitoring system physically coupled to the wheel to monitor air pressure of the tire.

33. (Canceled).

34. (Original) The tire pressure monitoring system of claim 16 wherein the motion detection system further comprises a counter, the counter preventing the tire pressure monitoring system from operating in the second operating mode until after at least two samples of the output signal from the piezoelectric sensor are above a predetermined threshold within a predetermined time.

35. (Original) The tire pressure monitoring system of claim 16 wherein the motion detection system further comprises a capacitive element, coupled in series to the output of the piezoelectric sensor for increasing a sensitivity of the output signal of the piezoelectric sensor.

36. (Original) The tire pressure monitoring system of claim 16 wherein the motion detection system further comprises a shunt resistive element, coupled in parallel to the output of the piezoelectric sensor for decreasing a sensitivity of the output signal of the piezoelectric sensor.

37. (Original) The tire pressure monitoring system of claim 16 further comprising:

a controller, wherein at least some operations of the motion detection system are performed by the controller.

38. (Currently Amended) A tire pressure monitoring system comprising:

a pressure sensor having an output for providing an indication of a sensed pressure inside a tire;

a controller having an input for sampling an indication of the sensed pressure at a first sample rate during a first operating mode and for sampling an indication of the sensed pressure at a second sample rate during a second operating mode, the second sample rate being [[greater]] lower than the first sample rate;

a motion detection circuit, comprising:

a piezoelectric sensor for sensing vibration of a wheel rotating over a surface, the piezoelectric sensor having an output to provide an output signal indicative of an amplitude of the sensed vibration, wherein the piezoelectric sensor is mounted on a lead frame and the controller is implemented in an integrated circuit die, which is stacked on top of the piezoelectric sensor, such that the integrated circuit die, acting as a mass, increases sensitivity of the piezoelectric sensor to vibrations;

an amplifier having an input coupled to the output of the piezoelectric sensor and an output;

a comparator having an input coupled to the output of the amplifier, an output of the comparator providing an indication that the output signal of the piezoelectric sensor is greater than a predetermined threshold;

wherein the operating mode of the tire pressure monitoring system is based upon the comparator output; and

a transmitter operably coupled to the controller, wherein the controller initiates transmitting by the transmitter of [[the]] information at a first transmitting rate during the first operating mode, wherein the first transmitting rate is [[greater]] lower than the first sample rate, wherein the controller initiates transmitting by the transmitter of the information at a second transmitting rate during the second operating mode, and wherein the second transmitting rate is [[greater]] lower than the first transmitting rate ~~and is greater than the second sample rate~~.